

**Amendments to th Claims**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

Claims 1-34. (canceled)

Claim 35. (currently amended) An isolated polynucleotide comprising:

(a) a nucleotide sequence encoding a polypeptide having delta-5 acyl-CoA desaturase activity, wherein the polypeptide has an amino acid sequence of ~~at least 80% sequence identity, based on the Clustal alignment method, when compared to SEQ ID NO:2,~~ or

(b) the full complement of the nucleotide sequence.

Claim 36-38. (canceled)

Claim 39. (previously presented) A vector comprising the polynucleotide of Claim 35.

Claim 40. (previously presented) A method for transforming a cell comprising transforming a cell with the polynucleotide of Claim 35.

Claim 41. (previously presented) A method for producing a plant comprising transforming a plant cell with the polynucleotide of Claim 35 and regenerating a plant from the transformed plant cell.

Claim 42. (previously presented) A plant comprising the chimeric gene of Claim 35.

Claim 43. (previously presented) A seed comprising the chimeric gene of Claim 35.

Claim 44. (previously presented) A method for isolating a polypeptide encoded by the polynucleotide of Claim 35 comprising isolating the polypeptide from a cell containing a chimeric gene comprising the polynucleotide operably linked to a regulatory sequence.

Claim 45. (previously presented) The isolated polynucleotide of Claim 35 wherein the nucleotide sequence comprises SEQ ID NO:1.

Claim 46. (previously presented) A chimeric gene comprising the nucleic acid fragment of Claim 35 operably linked to a regulatory sequence.

Claim 47. (previously presented) A transformed host cell comprising the chimeric gene of Claim 46.

Claim 48. (previously presented) A method of altering the level of expression of a delta-5 acyl-CoA desaturase in a host cell comprising:

- (a) transforming a host cell with the chimeric gene of Claim 46; and
  - (b) growing the transformed host cell produced in step (a) under conditions that are suitable for expression of the chimeric gene
- wherein expression of the chimeric gene results in production of altered levels of a delta-5 acyl-CoA desaturase in the transformed host cell.

Claim 49. (previously presented) A method of producing a desaturated fatty acid comprising a double bond in the delta-5 position in a host cell, the method comprising:

- (a) transforming a host cell with the chimeric gene of Claim 46; and
  - (b) growing the transformed host cell produced in step (a) under conditions that are suitable for expression of the chimeric gene
- wherein expression of the chimeric gene results in production of a desaturated fatty acid comprising a double bond in the delta-5 position.

Claim 50. (previously presented) A method of producing seed oil comprising a desaturated fatty acid wherein the fatty acid comprises a double bond in the delta-5 position, the method comprising:

- (a) transforming a plant cell with the chimeric gene of Claim 46;
  - (b) growing a fertile plant from the transformed plant cell of step (a);
  - (c) obtaining a seed from the plant of step (b); and
  - (d) processing the seed of step (c) to obtain oil
- wherein the oil comprises a desaturated fatty acid wherein the fatty acid comprises a double bond in the delta-5 position.

Claim 51. (previously presented) The method of Claim 50 wherein the plant cell is derived from an oilseed crop.

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Claim 52. (previously presented) The method of Claim 51 wherein the oilseed crop is soybean.